

Claims

1. A vessel harvesting device comprising:
 - a shaft;
 - a handle located on a proximal end of the shaft;
 - top and bottom portions connected to a distal end of the shaft, the top and bottom portions defining a gap and together having a first opening and one or more second openings;
 - an actuator operative to reciprocate one of the top and bottom portions relative to the other of the top and bottom portions, whereby the vessel is dissected from the surrounding tissue by the reciprocation.
2. The vessel harvesting device as recited in claim 1, further comprising a lumen provided longitudinally in the shaft.
3. The vessel harvesting device as recited in claim 1, further comprising:
 - ligation means and transection means for ligating and transecting side branch vessels, respectively.
4. The vessel harvesting device as recited in claim 3, wherein the ligation means comprises at least one pair of bi-polar electrodes, each electrode being of a different polarity.
5. The vessel harvesting device recited in claim 4, further comprising a second pair of electrodes, one of said pairs of electrodes being offset to a first side from a centerline of the device and the second of said pairs of electrodes being offset to a second side from the centerline of the device.
6. The vessel harvesting device as recited in claim 4, further comprising energizing means for energizing at least one pair of the bi-polar electrodes with RF energy.

7. The vessel harvesting device as recited in claim 1, wherein the actuating means includes a preventing means for preventing one of the top and bottom portions from articulating relative to the other.
8. The vessel harvesting device of claim 3, wherein the transection means comprises at least one raised cutting means located on the one of the top and bottom portions, wherein the transection is caused by the reciprocation of the cutting means across a side branch vessel.
9. The vessel harvesting device of claim 1, wherein one of the top and bottom portions is biased against the other of the top and bottom portions for compression of tissue in a compression zone, thereby accommodating vessels of various thickness.
10. The vessel harvesting device of claim 1, further comprising a motor operative to articulate the actuator.
11. An apparatus for an endoscopic vessel harvesting device comprising:
 - a top portion rigidly attached to the endoscopic harvesting device;
 - a bottom portion connected to the endoscopic harvesting device by an articulated connection, the top and bottom portions defining a gap to surround the vessel;
 - a first opening in one of the top and bottom portions;
 - one or more second openings in one of the top and bottom portions, wherein a vessel is dissected from its surrounding tissue by reciprocating the bottom portion relative to the top portion while traversing the length of the vessel.
12. The apparatus for an endoscopic vessel harvesting device as recited in claim 11, further comprising ligation means and transection means for ligating and transecting side branch vessels.

13. The apparatus for an endoscopic vessel harvesting device as recited in claim 12, wherein the ligation means comprises a least one pair of bi-polar electrodes, each electrode being of a different polarity.

14. The apparatus for an endoscopic vessel harvesting device as recited in claim 13, wherein the at least one pair of bi-polar electrodes comprises two pairs of electrodes one of said pairs of electrodes being offset to a first side from a centerline of the device and the second of said pairs of electrodes being offset to a second side from the centerline of the device.

15. The apparatus for an endoscopic vessel harvesting device as recited in claim 13, comprising energizing means for energizing the bi-polar electrodes with RF energy.

16. The apparatus for an endoscopic vessel harvesting device as recited in claim 11, wherein the transection means comprises at least one raised cutting means located on the bottom portion which is reciprocated relative to the top portion, wherein the transection is caused by the reciprocation of the cutting means across a side branch vessel.

17. A method of vessel dissection comprising the steps of;

- (a) locating the vessel to be harvested;
- (b) making an incision to expose the vessel;
- (c) pre-dissecting the vessel from tissue surrounding the vessel;
- (d) inserting a portion of the vessel which has been pre-dissected into a two piece vessel harvesting device so that a top and a bottom portion surround the vessel;
- (e) dissecting the tissue above the vessel using the top portion by projecting the top portion along the vessel and dissecting the tissue below the vessel by reciprocating the bottom portion;
- (f) traversing the length of the vessel while repeating step (e);
- (g) ligating and transecting the dissected vessel; and
- (h) removing the vessel.

18. The method as described in claim 17, wherein the traversing step further comprises the step of ligating and transecting side branch vessels of the vessel.

19. The method as described in claim 18, wherein the ligation and transection of the side branch vessels further comprises the step of energizing a bi-polar electrode ligation means to ligate side branch vessels.

20. The method as described in claim 17, wherein the ligation and transection of the side branch vessels further comprises the step of cutting the side branch vessels by repeatedly drawing a raised cutting means housed on a lower portion across a side branch vessel.

21. A method of transecting a vessel, the method comprising:

providing a vessel harvesting device defining a slidable compression zone, the compression zone formed of a cutting element and a cutting groove, the slidable compression zone further having concentrated compression for coagulating a vessel captured by the vessel harvesting device, electrodes for ligation of the captured vessel, and a transection means;

compressing a vessel in the slidable compression zone between the cutting element and the cutting groove;

energizing the electrodes with RF energy to simultaneously cauterize the vessel being compressed; and

cutting the vessel being compressed by reciprocation of the cutting element in the cutting groove with the vessel compressed therein, wherein the simultaneous compression, cauterization, and cutting hemostatically divides the vessel.

22. An apparatus for an endoscopic vessel harvesting device comprising:

a top portion connected to the vessel harvesting device;

a bottom portion connected to the harvesting device, wherein at least one of the top and bottom portions is connected to the vessel harvesting device to be operative to axially articulate; and

a first opening in a distal end of the apparatus,
wherein at least one of the top and bottom portions separates the harvested vessel from surrounding tissue.

23. The apparatus for an endoscopic vessel harvesting device according to claim 22, wherein one of the top and bottom portions is rigidly attached to the vessel harvesting device.